

Name _____

Date _____

A2CC1: Review Sheet for Exam 2 Quarter 4

Show all work on a ***separate sheet*** of paper. **This review is not comprehensive, be sure to study your old notes, tests, and homework assignments!**

1. If y varies directly as x , and $x = 32$ when $y = 8$, what is y written as a function of x ?

a. $y = 8x + 32$

c. $y = 32x + 8$

b. $y = \frac{1}{4}x$

d. $y = 4x$

2. If y varies directly as x , and $x = 4$ when $y = 9$, what is x when $y = 144$?

a. 64

b. 324

c. 36

d. 32

3. If y varies directly as x , and $x = 3$ when $y = 7$, what is x when $y = 98$?

a. 14

b. 28

c. 21

d. 42

4. The cost of pens varies directly as the number of dozens purchased. If 4 dozen cost \$10.60, how much will 7 dozen cost?

5. The cost of travelling varies directly as the distance travelled. If it costs \$2,240 to fly from California to Hawaii (2,200 miles), how much would it cost to fly a distance of 4,000 miles from California to Peru?

6. If p varies directly as q , and $p = 7$ when $q = 9$, find p when $q = 12$.

7. If x varies directly as y and $x = 12$ when $y = 7$, find y when $x = 15$.

8. Hector earned \$44.70 for working 6 hours. How much will he earn for working 8 hours?

9. The distance the body falls due to gravity varies directly as the square of the time. If the body falls 40 meters in 2 seconds, how far does it fall in 4 seconds?

10. Solve the system of equations for x and y:

$$\begin{aligned}2x + y &= 4 \\4x - 3y &= 13\end{aligned}$$

11. Solve the system for x and y:

$$\begin{aligned}4x - 2y &= 2 \\-3x + 2y &= 0\end{aligned}$$

12. Solve the following system of equations for x, y, and z:

$$\begin{aligned}x + y - z &= 5 \\3x - 2y + z &= 8 \\2x + 2y - 2z &= 7\end{aligned}$$

13. Solve the following system of equations for x, y, and z:

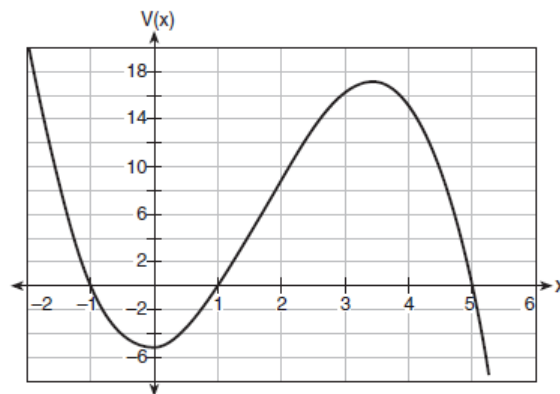
$$\begin{aligned}x + y &= 3 \\-y + z &= 3 \\x + 2z &= 10\end{aligned}$$

14. Joelle has a credit card that has a 19.2% annual interest rate compounded monthly. She owes a total balance of B dollars after m months. Assuming she makes no payments on her account, the table below illustrates the balance she owes after m months.

m	B
0	1000.00
10	1172.00
19	1352.00
36	1770.80
60	2591.90
69	2990.00
72	3135.80
73	3186.00

Over which interval of time is her average rate of change for the balance on her credit card account the greatest?

- a. month 10 to month 60
 - b. month 19 to month 69
 - c. month 36 to month 72
 - d. month 60 to month 73
15. A cardboard box manufacturing company is building boxes with length represented by $x + 1$, width by $5 - x$, and height by $x - 1$. The volume of the box is modeled by the function below.



Over which interval is the volume of the box changing at the fastest average rate?

- a. $[1, 2]$
- b. $[1, 3.5]$
- c. $[1, 5]$
- d. $[0, 3.5]$

16. The distance needed to stop a car after applying the brakes varies directly with the square of the car's speed. The table below shows stopping distances for various speeds.

Speed (mph)	10	20	30	40	50	60	70
Distance (ft)	6.25	25	56.25	100	156.25	225	306.25

Determine the average rate of change in braking distance, in ft/mph, between one car traveling at 50 mph and one traveling at 70 mph.

17. Which of the following functions has a greater average rate of change on the interval $[-2, 4]$?

x	f(x)
-4	0.3125
-3	0.625
-2	1.25
-1	2.5
0	5
1	10
2	20
3	40
4	80
5	160
6	320

$$g(x) = 4x^3 - 5x^2 + 3$$